

WHAT IS CLAIMED IS:

1. A node switching method of controlling the execution enablement/disablement for I/O requests from plural host computers to a disk device so as to perform the switching to a node which is capable of executing said I/O requests, said node switching method comprising the steps of:

in said host computers,  
transmitting access-right change commands to said disk device in advance, said access-right change commands including one piece or plural pieces of information resulting from causing I/O-enable/disable information and host identification information to correspond to each other in a one-to-one correspondence manner, said I/O-enable/disable information indicating whether or not said disk device will execute said I/O requests from said host computers, said host identification information being designed for identifying said respective host computers, and  
issuing, to said disk device, said I/O requests to which said host computers have added said host identification information; and

in said disk device,  
changing in batch said I/O-enable/disable information on each host-computer basis in accordance with said access-right change commands from said host computers, and simultaneously storing and holding said access-right change commands,

identifying said request-source host computers in response to said I/O requests from said host computers, and, based on said host identification information and said I/O-enable/disable information that said disk device has held,

judging said execution enablement/disablement for said I/O requests on each host-computer's node basis.

2. The node switching method according to Claim 1, further comprising the steps of:

in said host computers,

transmitting path information to said disk device in advance, said path information resulting from causing said host identification information and path identification information to correspond to each other, said path identification information being designed for identifying all of logical paths from said host computers to said disk device, and

issuing said I/O requests to which said host computers have added said path identification information; and

in said disk device,

storing and holding said path identification information transmitted from said host computers,

extracting said path identification information from said I/O requests transmitted from said host computers, extracting said host identification information corresponding to said path

identification information stored and held, and simultaneously extracting said I/O-enable/disable information with which said host identification information extracted coincides, and

judging said execution enablement/disablement for said I/O requests on each host-computer's node basis.

3. The node switching method according to Claim 1, further comprising the steps of:

if an I/O-disable command is included in said I/O-enable/disable information in said access-right change commands transmitted from said host computers,

in said disk device,

extracting, from among said access-right change commands, host identification information corresponding to said I/O-enable/disable information with respect to all of I/O-disable commands included in said same access-right change commands, and

updating I/O-enable/disable information for host identification information into an I/O-disable state, said host identification information coinciding with said host identification information extracted and being stored and held in said disk device, and

if an I/O-enable command is included in said I/O-enable/disable information in said access-right change commands transmitted from said host computers,

in said disk device,

extracting, from among said access-right

change commands, host identification information corresponding to said I/O-enable/disable information with respect to all of I/O-enable commands included in said same access-right change commands, and

updating said I/O-enable/disable information for host identification information into an I/O-enable state, said host identification information coinciding with said host identification information extracted and being stored and held in said disk device.

4. The node switching method according to Claim 3, wherein

said processing of updating said I/O-enable/disable information for said host identification information into said I/O-enable state is kept waiting for all of I/Os to be completed, and is executed after the completion of all of said I/Os, said host identification information being stored and held in said disk device, all of said I/Os being in processing in said host computers.

5. The node switching method according to Claim 2, wherein

said disk device is configured to include plural logical disks resulting from logically dividing an assembly of disk drives,

said host computers

transmitting said access-right change commands to said disk device in advance, said access-right change commands including one piece or plural

pieces of information resulting from causing said I/O-enable/disable information, said host identification information and logical-disk identification information to correspond to each other, said I/O-enable/disable information indicating whether or not said disk device will execute said I/O requests from said host computers, said host identification information being designed for identifying said respective host computers, and said logical-disk identification information being designed for identifying said logical disks, and

issuing, to said disk device, said I/O requests to which said host computers have added said logical-disk identification information and said path identification information;

said disk device

changing in batch said I/O-enable/disable information on each host-computer basis in accordance with said access-right change commands from said host computers, and simultaneously storing and holding said access-right change commands,

extracting said path identification information from said I/O requests transmitted from said host computers, extracting said host identification information corresponding to said path identification information from said access-right change commands stored and held, and extracting said I/O-enable/disable information for which said host

identification information extracted and logical-disk identification information on logical disks selected as targets of said I/O requests coincide with each other, and

judging said execution enablement/disablement for said I/O requests on each host-computer's node basis.

6. The node switching method according to Claim 5, wherein

said extraction of said I/O-enable/disable information comprising the steps of:

extracting said logical-disk identification information and said host identification information from said access-right change commands, and

extracting said I/O-enable/disable information whose logical-disk identification information and host identification information coincide with said logical-disk identification information and said host identification information extracted.

7. A node switching method of controlling said execution enablement/disablement for I/O requests from plural host computers to a disk device so as to perform the switching to a node which is capable of executing said I/O requests, said node switching method, wherein

said host computers possesses plural application processes;

said application processes includes the steps

of:

transmitting access-right change commands to said disk device in advance, said access-right change commands including one piece or plural pieces of information resulting from causing I/O-enable/disable information and application-process identification information to correspond to each other in a one-to-one correspondence manner, said I/O-enable/disable information indicating whether or not said disk device will execute said I/O requests from said application processes, said application-process identification information being designed for identifying said respective application processes, and,

issuing, to said disk device, said I/O requests to which said application processes have added said application-process identification information; and

said disk device includes the steps of:

changing in batch said I/O-enable/disable information on each application-process basis in accordance with said access-right change commands from said application processes, and simultaneously storing and holding said access-right change commands,

identifying said request-source application processes in response to said I/O requests from said application processes, and, based on said application-process identification information and said I/O-enable/disable information that said disk device has

held, and

judging said execution enablement/disablement for said I/O requests on each application-process's node basis.

8. An information processing system configured to control the execution enablement/disablement for I/O requests from plural host computers to a disk device so as to perform the switching to a node which is capable of executing said I/O requests,

each of said host computers comprising:

an I/O request unit for issuing said I/O request to which said I/O request unit has added host identification information for identifying said respective host computers, and

an access-right change command unit for transmitting an access-right change command to said disk device, said access-right change command including one piece or plural pieces of information resulting from causing I/O-enable/disable information and said host identification information to correspond to each other in a one-to-one correspondence manner, said I/O-enable/disable information indicating whether or not said disk device will execute said I/O requests from said host computers; and

said disk device comprising:

an access-right management table for storing and holding said access-right change commands from said host computers,

an access control unit for identifying said request-source host computers of said I/O requests, and judging said execution enablement/disablement for said I/O requests on each host-computer basis from said host identification information and said access-right management table, and

an access-right change unit that, in accordance with said access-right change commands from said host computers, changes in batch said I/O-enable/disable information on each host-computer basis within said access-right management table,

said disk device judging said execution enablement/disablement for said I/O requests on each host-computer's node basis, said host computers being said I/O request sources.

9. The information processing system according to Claim 8, wherein

each of said host computers further comprises a path-information transmission unit for transmitting path information to said disk device, said path information resulting from causing said host identification information and path identification information to correspond to each other, said path identification information being designed for identifying all of logical paths from said host computers to said disk device,

said disk device further comprising a path-information management table for storing and holding

said path information transmitted from said path-information transmission unit in each of said host computers,

said I/O request unit issuing, to said disk device, said I/O request to which said I/O request unit has added said path identification information,

said access control unit

extracting said path identification information from said I/O requests transmitted from said host computers, making reference to said path-information management table thereby to extract said host identification information corresponding to said path identification information extracted, and making reference to said access-right management table thereby to extract said I/O-enable/disable information with which said host identification information extracted coincides, and

judging said execution enablement/disablement for said I/O requests on each host-computer's node basis.